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Are Americans On A Consumption Binge?

The Evidence Reconsidered

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Executive Summary

It is widely believed that one of the fundamental problems of the United States economy in recent years has been a "spending binge" on the part of American consumers. Proponents of this view have cited as proof the behavior of certain selected economic indicators, particularly the high percentage of personal disposable income devoted to consumption expenditures and the corresponding decline in the personal saving rate in the period 1985 to 1988. Acceptance of the spending binge hypothesis has led to demands for the federal government to adopt more consumption taxes (e.g., excise taxes or a value added tax) or saving incentives (e.g., tax breaks for capital gains or Individual Retirement Accounts) in order to remedy the supposed "saving shortfall."

This report refutes the hypothesis that the private household sector as a whole has been "overconsuming" in recent years. It shows that consumption growth in the United States has not been unusually rapid in the 1980s, that the conventional measures which show low saving rates are misleading and that private investment has not been constrained by a shortfall of saving. The fundamental problem of the American economy in the 1980s was not overconsumption, but underproduction.

This report...shows that consumption growth in the United States has not been unusually rapid in the 1980s, that the conventional measures which show low saving rates are misleading and that private investment has not been constrained by a shortfall of saving.

The specific findings of the study can be summarized as follows:

- In the 1980s, only the richest 20 percent of households experienced a high average growth rate of real consumption spending. The bottom 80 percent of households had, on average, little or no growth of their real consumption expenditures in the last decade. Most of the increase in the average consumption-GNP ratio can be explained by higher personal interest income, increased personal wealth (net worth) and cash realizations from sales of equity due to corporate takeovers—all of which are highly concentrated among the richest households. If anyone was overconsuming in the 1980s, it was the upper income families—not the average American family.

- The overall growth of consumption was no more rapid over the decade of the 1980s than in the previous three decades; by some

Consumption appears excessive relative to national income largely because national income was depressed in the 1980s.

measures it even slowed down. Although aggregate real personal consumption expenditures per capita did grow rapidly in 1985-88, this rapid growth appears to have been a delayed effort to make up for the losses in consumption during the prolonged recessionary period of 1980-82. As of 1988, real per capita consumption had still not returned to its pre-1979 trend growth line.

- Consumption appears excessive relative to national income largely because national income was depressed in the 1980s. Gross national product and personal disposable income grew even more slowly than personal consumption in the 1980s. The trade deficit, which is due to factors (e.g., exchange rates, declining competitiveness and macro policies) which are beyond the control of private households, seems to be largely responsible for the slow growth of domestic production and national income.

- The appearance of low rates of *net* private saving and investment is mainly due to high rates of economic depreciation of the nation's capital stock, not to a lack of thrift in the private sector. The rising depreciation rate seems to be partly the benign effect of technological changes which have made capital equipment shorter-lived, and partly a reflection of slow output growth and short planning horizons. Gross corporate saving (cash flow), as a percentage of GNP, was higher in 1985-88 than at any time in recent decades. Since this cash flow is the main source of finance for business investment, the claim that investment has been constrained by a "saving shortfall" is without foundation. Indeed, gross investment spending has been about the same, as a percentage of GNP, as it was in most of the postwar period.

- While gross corporate profits were robust in the 1980s, net profits of nonfinancial corporations were squeezed by the combination of high economic depreciation allowances and high net interest payments. The rising burden of net interest payments in the 1980s redistributed income from business firms to wealthy households, thus enabling the latter to increase their consumption spending.

- The low personal saving rate of 1985-88 can be explained largely by the fact that the value of wealth rose rapidly in that period, enabling wealthy households to spend more out of current income while still increasing their assets. And while the conventional measure of the personal saving rate declined, broader measures of personal savings were not historically low in that period.

The tax policy changes of the last decade have generally favored the richest ten percent of the population, and this is the only group which has been able to increase its real consumption spending rapidly in the last decade.

This report has important implications for the management of U.S. fiscal policy—especially with regard to the incidence of taxation. The analysis shows that there is no special need to use tax policy to discourage mass consumption or to encourage personal saving. Rather, since the tax policy changes of the last decade have generally favored the richest ten percent of the population, and since this is the only group which has been able to increase its real consumption spending rapidly in the last decade, there is a *prima facie* case for restoring at least the pre-1980 degree of progressivity of the tax system.

Introduction

A fundamental problem of "overconsumption," or a "savings shortfall"...is held by many to be responsible for most of the nation's economic ills.

A common theme in recent economic discussions is the idea that the United States has embarked on a "consumption binge" which is depleting the nation's ability to provide for future growth. The American people, it is said, are "living beyond their means." In the popular press, this notion is often interpreted as signifying a massive moral failure on the part of the citizenry: the average American family seems to be selling its birthright for a mess of appliances.[1] While professional economists have been much more circumspect in assigning blame,[2] many have nonetheless argued vociferously that the U.S. economy suffers from a fundamental problem of "overconsumption," or a "savings shortfall." This problem is held by many to be responsible for most of the nation's economic ills, ranging from declining international competitiveness to slow productivity growth to stagnant real wages.

If one accepts the overconsumption thesis, it follows that the nation's economic problems cannot be solved without reducing the average American family's purchases of goods and services, i.e., cutting its standard of living, at least in the short run. In order to accomplish this, many economists favor shifting the main burden of federal taxation from the income tax to some kind of consumption tax.[3] Various ways of taxing consumption have been suggested, such as a value added tax (VAT), a national sales tax, increased excise taxes on particular commodities or a personal consumption tax (similar to the income tax but with saving subtracted from income). Another proposal often justified on these grounds is to cut back on Social Security and Medicare benefits for America's elderly. In addition, all kinds of tax incentives for saving, from cutting taxes on capital gains and dividends to raising the deduction for Individual Retirement Accounts (IRAs), have been advocated (see Walker and Bloomfield, eds., 1990). And if nothing else can be done, it is argued, then we must suppress consumer demand through restrictive fiscal policy. Thus Summers and Carroll (1987, p. 635) argue, "Unless new ways of encouraging private saving can be found, it may be necessary for the federal government to run chronic budget surpluses in coming years."

No one can disagree with the point that the United States, like any society, must provide for its future by investing an adequate portion of its current income. Nor can it be denied that the U.S. is failing to invest adequately to provide for future needs. The loss of international competitiveness in high-technology areas, sluggish productivity growth and lagging real wages, and the chronic trade deficits which have transformed the U.S. into a net debtor country[4] are all troubling signs about our economic future. But it remains to be seen whether any of these or related problems are attributable to a generalized overconsumption binge by American households.

Of course, one can always make the tautologically true statement that a country with a current account (trade) deficit must be spending in excess of its income, as implied by the macroeconomic identity,

Current Account Balance =
Net Exports of Goods and Services[5]
= National Income - Domestic Spending
= Saving - Investment - Government Budget Deficit
= Net foreign investment.

But no *causal* inferences can be drawn merely from the fact that this balance is negative.[6] While the federal government has been running large budget deficits, at least by conventional accounting procedures,[7] it is by no means obvious that excessive personal consumption spending or low private saving are *independent causes* of the negative current account balance—or that increasing the private saving rate would necessarily stimulate additional domestic investment.

This report challenges the assertion that personal consumption has been unusually high, and that private saving has been unusually depressed, in the U.S. in the 1980s.

This report challenges the assertion that personal consumption has been unusually high, and that private saving has been unusually depressed, in the U.S. in the 1980s. This report shows that different measures of consumption and saving rates, as well as different choices of the time periods compared, give very different impressions of how the 1980s compare with previous decades.[8] Furthermore, we shall show that most of the measured increase in the ratio of consumption to national income in the 1980s can be explained by factors beyond the control of individual consumers—not only federal tax and spending policies but also structural changes in the economy.

Part of what appears to be widespread overconsumption by the average American family is in fact a function of the increasing concentration of income and wealth in American society.

One of the most important findings is that part of what appears to be widespread overconsumption by the average American family is in fact a function of the increasing concentration of income and wealth in American society. Survey data reveal that only the top one-fifth of households experienced rapid growth of real consumption expenditures in the 1980s. And econometric analysis of the aggregate data shows that, after correcting for demographic shifts, most of the increase in the consumption share of national income can be attributed to higher interest income, personal wealth and cash realizations from corporate takeovers—all of which are highly concentrated at the top of the social scale. Since most of the proposed measures to cut consumption and boost saving are distributionally regressive, they would impose most of the adjustment burden on those who have shared the least (if at all) in excessive consumption in this decade, while further worsening inequality in American society.

I also find that some of the statistics which are usually relied upon to support the "consumption binge" and "saving shortfall" arguments actually reflect a different problem which is rarely acknowledged or discussed: the rising rate of depreciation of the nation's capital stock. The main culprit in reducing the measured *net* private saving and investment rates in the U.S. economy in the 1980s is historically unprecedented economic depreciation, not excessive consumer spending. In addition, the nation's drift into chronic trade deficits—caused by the combined effects of domestic *public* dissaving (the federal budget deficit), tight monetary policy, foreign exchange market "bubbles," declining competitiveness and contractionary macro policies in other countries—helps to create the appearance of excessive private consumption spending in the U.S. by depressing domestic production and national income.

This report thus calls into question the need for any of the anti-consumption, pro-saving policy changes mentioned above. If the federal government needs to raise additional revenue, in order to reduce its deficit or to fund desperately needed programs (infrastructure, education, etc.), there is no reason for the tax increases to be specifically focused on curtailing mass consumption. Rather than imposing widespread sacrifice, we should use more progressive taxation in order to shift more of the tax burden back to the wealthy. Tax incentives for saving (e.g., capital gains tax cuts) would be especially perverse in today's environment since the distributional consequences are almost certain to be regressive (especially if the

revenue losses are offset by consumption taxes), and even if the incentives succeed in stimulating saving (which is doubtful), the result might be to depress the economy rather than to stimulate growth.

The rest of this report is divided into five parts: first, a review of the recent economic literature in support of the overconsumption hypothesis; second, an examination of the evidence on consumer behavior in the 1980s, which does not generally support the notion of a "binge"; third, an analysis of the evidence on saving rates, which gives no unambiguous indication of a shortfall in private saving; fourth, a brief look at the evidence on investment spending, demonstrating that it has not been hurt by a "saving shortfall"; and fifth, a discussion of the policy implications of rejecting the overconsumption hypothesis. There is also a technical Appendix which explains the econometric analysis of consumption in more depth.

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Economic Analyses of Overconsumption

Many respected economists...insist that there is a private saving shortfall. They put primary emphasis on the personal saving rate.

At a general level, the hypothesis of an overconsumption or undersaving problem has been supported by a wide range of professional economists. However, there has also been considerable dissent from both conservatives and liberals (e.g., Barro, 1989; Eisner, 1989a, 1989b, and 1989c), and even among those who support the hypothesis there is no general agreement on the nature and causes of the problem. While most advocates of this hypothesis agree that total national saving (public and private together) is too low, they do not agree on the relative importance of public and private sector saving in the total saving deficiency. In particular, while there is general agreement that federal dissaving (the budget deficit) is an important part of the problem, there is no agreement on whether there is also a significant private saving shortfall or, if so, to what it is due.

Many respected economists, such as Lawrence Summers and Chris Carroll (1987), Barry Bosworth (1989), and George Hatsopoulos, Paul Krugman and James Poterba (1989) insist that there is a private saving shortfall. They put primary emphasis on the personal saving rate, arguing that it has declined at least partly for reasons which are independent of fiscal policy. Benjamin Friedman (1988, p. 5-6) disagrees, arguing that:

> *The decision to mortgage America's economic future has not been a matter of individual choice but of legislated public policy. Popular talk of the 'me generation' to the contrary, most individual Americans are working just as hard, and saving nearly as much, as their parents and grandparents did. What is different is...[t]he tax and spending policies that the U.S. government has pursued throughout Ronald Reagan's presidency.*

In Friedman's view, it is the nation as a whole that is overconsuming, as a result of strictly *fiscal* profligacy.

Even more wide-ranging disagreements are found in the efforts to explain why the personal saving rate has fallen in the 1980s. One important area of disagreement concerns the importance of demo-

graphic factors in explaining the decrease in personal saving as a percentage of disposable income in the 1980s. According to the "life-cycle" model of consumption, individuals borrow heavily in their youth, save for retirement in middle age (prime earning years), and then live off their savings in old age. Therefore, the personal saving rate should naturally vary with the age-composition of the population.

The evidence for the life-cycle view is mixed at best. Hatsopoulos *et al.* (1989) and Christian (1989) find that certain measures of demographic shift (the percentage of the population under age 16, and the ratio of "prime savers" aged 45-64 to "prime borrowers" aged 25-44, respectively) are correlated with changes in personal consumption and saving rates over the last few decades. Christian's analysis in particular leads to the optimistic prediction that the aging of the baby boomers in the 1990s and early 2000s will automatically help personal saving to recover. However, Hatsopoulos *et al.* (1989, p. 17) admit that they chose the population-under-16 variable because "more detailed demographic variables" led to "very imprecise estimates." And Steinberg (1989) shows that another plausible life-cycle measure—the percentage of the total population which is "middle-aged" (defined as 35-49)—has no positive correlation with the saving rate. Thus only certain carefully selected demographic variables seem to be correlated with the saving rate.

The cross-sectional data on saving rates by age cohort do not generally support the life-cycle view; these data do not show a clear pattern of saving rates rising until middle age and falling thereafter, as that view predicts (see Summers and Carroll, 1987, Table 10, p. 632). Summers and Carroll (1987, Table 9, p. 631) construct adjusted personal saving rates that correct for changes in the share of income going to each age group and find that the adjustments explain very little of the variation in the aggregate rate. And Danziger *et al.* (1982-83, p. 224) conclude from an econometric study that, contrary to the life-cycle model, "the elderly spend less than the nonelderly at the same level of income and ... the very oldest of the elderly have the lowest average propensities to consume."

Only certain carefully selected demographic variables seem to be correlated with the saving rate.

Summers and Carroll focus their explanation of the falling personal saving rate on the increasing well-being of the elderly, which may diminish the incentives for younger people to save; improved insurance coverage, which may reduce the need for precautionary

In spite of the lack of agreement on the nature and causes of the problem, there is, curiously, broad support for the proposition that everyone...will have to sacrifice if the nation is to return to "living within its means."

saving; the easing of financial terms for mortgages and consumer loans, which lessens the need to save for down payments; and "consumption out of cash payouts from corporate restructuring" (1987, p. 623). Hatsopoulos *et al.* (1989) attribute most of the "overconsumption" in the mid-1980s to the increased value of wealth, the sharp rise in interest income and cash receipts from corporate takeovers. Bosworth (1989) and Christian (1989) both argue that part of the drop in personal saving can be explained by a decline in employer contributions for defined-benefit pension plans, due to the effect of high interest rates in lowering the present value of future liabilities; this still leaves a large unexplained drop in non-pension (or "discretionary") personal saving. In brief, there is no shortage of explanations for the alleged shortfall of saving but neither is there any clear consensus.

In spite of the lack of agreement on the nature and causes of the problem, there is, curiously, broad support for the proposition that everyone—even those whose real incomes and living standards have not risen during the period of supposed "overconsumption"— will have to sacrifice if the nation is to return to "living within its means." Whether it is accomplished through consumption taxes, saving incentives or fiscal tightening, all proponents of the overconsumption hypothesis agree that the consumption of the average American family must be sacrificed on the altar of higher national saving.

The contrast between the widespread agreement on the existence of a problem of overconsumption, and the lack of any consensus on what caused it—fiscal policy, demographics, high interest rates or other factors—should make us pause before accepting the strong policy conclusions about how to solve this alleged problem. The next three sections of this report analyze in depth the behavior of consumption, saving and investment in the United States in the 1980s compared with previous decades in order to assess what the real problems were, as well as to offer some alternative explanations.

The Evidence on Consumption

Personal Consumption Rates

Table 1 compares some indicators of consumption by decadal averages, with a separate column for 1985-88—the years which are usually cited as the height of the "binge."[9] The nation's average propensity to consume, the ratio of personal consumption expenditures to personal disposable income,[10] is the most widely used indicator. By this measure, consumption spending rose from an average of 89.6 percent of disposable income in 1970-79 to 93.1 percent in 1985-88, an increase of 3.5 percent. Does this prove that consumers have been binging? Not necessarily.

The average propensity to consume for the whole period 1980-88 is smaller (91.8 percent) than for 1985-88, and not far above the 1950s and 1960s averages. In fact, the average propensity for 1980-84 (not shown in the table) was only 90.8 percent—lower than in the 1950s and 1960s and not very far above the 1970s. And in 1989, this propensity was back down to 91.8 percent, just about the 1980-88 average. If anything, it is the 1970s which appear to have had an unusually low consumption rate, perhaps as a result of high inflation. To conclude that the nation has undergone a fundamental shift in consumer behavior just by comparing the data for 1970-79 and 1985-88 would therefore be misleading.

If anything, it is the 1970s which appear to have had an unusually low consumption rate, perhaps as a result of high inflation.

Table 1
Alternative Measures of Personal Consumption Expenditures
(in percent)

	1950-59	1960-69	1970-79	1980-88	1985-88
Consumption as Percentage of					
Disposable Income	91.5%	91.0%	89.6%	91.8%	93.1%
Personal Wealth[a]	19.4	19.0	20.7	20.3	20.6

Sources: U.S. Department of Commerce, Bureau of Economic Analysis (BEA), National Income and Product Accounts; Board of Governors of the Federal Reserve System, *Balance Sheets for the U.S. Economy* (October 1989).

a. Measured by household net worth.

Moreover, other measures show that consumer spending was not excessive even in the mid-1980s. Current disposable income is not the only source of consumer purchasing power; wealthy consumers can spend out of their accumulated assets, either by selling them off or by borrowing against them.[11] Table 1 also shows personal consumption expenditures as a percentage of personal wealth. By this measure, the consumption rate was roughly the same in the 1970s and the 1980s—it was even slightly lower in the mid-1980s than in the 1970s—although it was higher in both these decades than in the previous two. Generally, consumption has been much more stable in relation to wealth than in relation to income.

Current disposable income is not the only source of consumer purchasing power; wealthy consumers can spend out of their accumulated assets.

The fact that consumption expenditures rose sharply relative to disposable income, but not relative to personal wealth, in the mid-1980s suggests an interpretation which is at odds with the impression of an overall consumer binge. Since wealth is much more concentrated than income, the increased rate of consumption out of current income in the mid-1980s may, at least to some extent, have been due to increased spending by the wealthiest households, whose assets rose considerably in value in the 1980s, and not to a "spending spree" on the part of the average American family. Some evidence in support of this interpretation is presented in Table 2, which shows the growth of real household consumer expenditures disaggregated by income quintile.

While real consumption expenditures grew relatively most rapidly in the lowest income group in the 1970s, they grew relatively most rapidly in the highest income group in the 1980s.

Table 2

Average Annual Growth Rates of Real Consumer Expenditures
1972-73 to 1986-87, in percent

	1972-73 to 1980-81	1980-81 to 1986-87
All consumer units	-0.29 %	0.83 %
By income quintile		
Lowest 20%	2.03	0.38
Second 20%	0.12	-0.50
Third 20%	-0.51	0.12
Fourth 20%	-0.35	0.67
Highest 20%	-0.38	2.20

Source: U.S. Department of Labor, Bureau of Labor Statistics, Survey of Consumer Expenditures and Consumer Price Index.

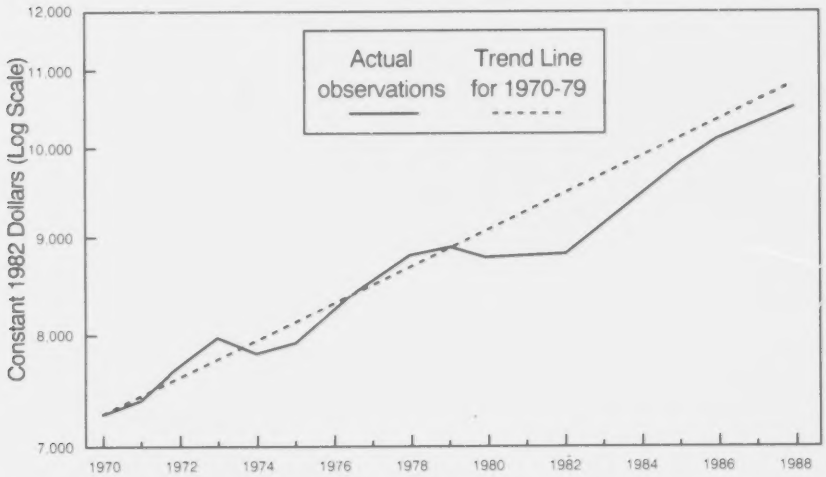
Notes: Current dollar expenditures were deflated using the CPI-U-X1 with consistent treatment of housing costs. The 1986 and 1987 expenditures were averaged in nominal terms for consistency with the earlier surveys, which were done on a biannual basis.

The growth rates in Table 2 must be used with caution since they are not taken from true longitudinal surveys—i.e., the same households are not necessarily in the same income quintiles in each period. Also, it is necessary to use the recession years 1980-81 as the break point between the two time periods, which biases downward all the growth rates for the 1970s (and similarly biases them upward for the 1980s).[12] Thus, only the relative growth rates of the different income groups for the same time period can meaningfully be compared.

In spite of these difficulties, the broad pattern revealed by these data is clear: while real consumption expenditures grew relatively most rapidly in the lowest income group in the 1970s, they grew relatively most rapidly in the highest income group in the 1980s. Since the aggregate consumption rate is an income-weighted average of the consumption rates of the income groups, it should not be surprising that the average rate rose in the 1980s, when consumption growth was strongest in the highest income group.

Figure 1a

Real Personal Consumption Expenditures Per Capita, 1970-88



Source: National Income and Product Accounts and author's calculations.

Another interesting comparison is how real per capita consumption has grown in recent years compared with past trends. Figure 1a shows that real per capita consumption in the entire decade of the 1980s has remained below the trend of the 1970s—which was itself a decade of recurrent crises in energy, inflation, etc.—in spite of a relatively rapid recovery from 1983 to 1986.[13] Figure 1b shows that the same is true if we take the trend growth of real per capita consumption for the longer period 1950-79.

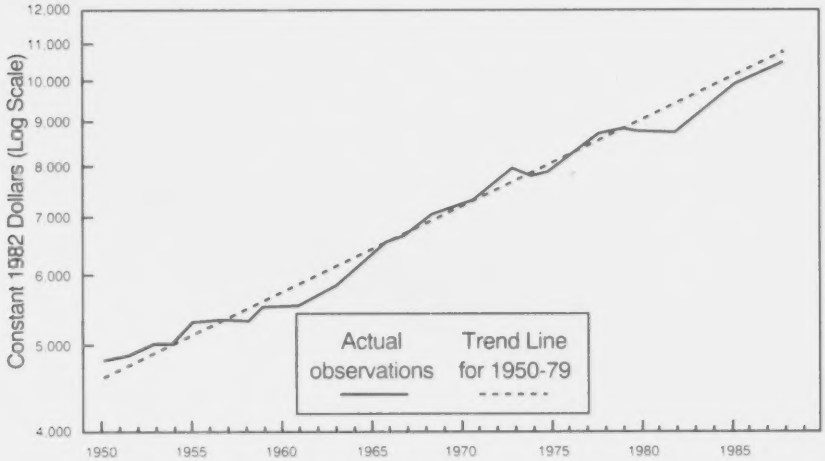
These graphs reveal that the unusually high ratio of consumption to disposable income in the mid-1980s did not reflect a historically unprecedented spending "binge," as so many commentators have claimed. If any generalization can be made about aggregate consumer behavior, the most reasonable inference would be that consumers were just attempting to catch up in the growth of their standard of living in the mid-1980s, after losing ground during the prolonged 1980-82 recessionary period and that to this day they have not yet made up all the lost ground relative to the previous trend.

The unusually high ratio of consumption to disposable income in the mid-1980s did not reflect a historically unprecedented spending "binge."

Of course, it could be argued that real income growth also slowed down in the 1980s and therefore consumption growth should have slowed down. If the consumption-income ratio rose,

Figure 1b

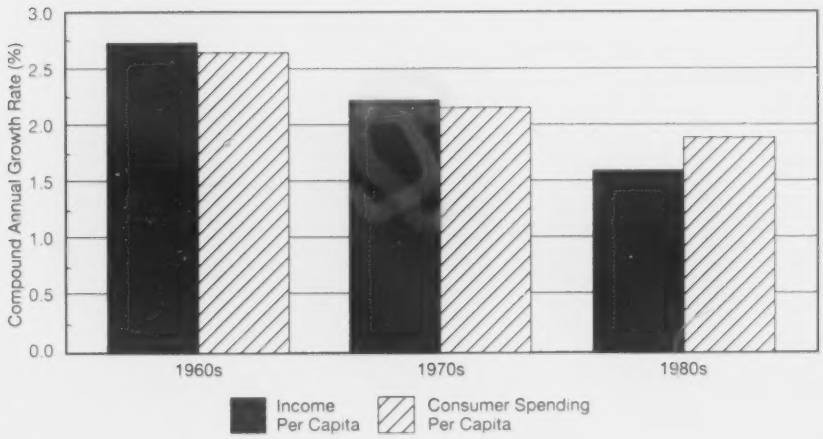
Real Personal Consumption Expenditures Per Capita, 1950-88



Source: National Income and Product Accounts and author's calculations.

Figure 2

Growth of Real Disposable Income and Consumer Spending Per Capita



Source: National Income and Product Accounts and author's calculations. Based on a diagram in Steinberg (1989).

There are some important conceptual slips in...the concept of "national consumption."

this would imply that consumers did not sufficiently "adjust" to the new environment of slow income growth. This argument in itself would represent an advance on the "overconsumption" hypothesis, since it would focus attention on why income grew so slowly in the 1980s. As a glance at Figure 2 will show, the really stunning fact about the 1980s is that income growth fell much more sharply than consumption growth.[14] The story of the past decade is one of underproduction, not overconsumption.

National Consumption and National Income

Studies of "overconsumption" (e.g., Hatsopoulos *et al.*, 1989) often measure consumption as a percentage of net national product (NNP), as shown in Table 3. The broadest measure of consumption used in these studies is so-called "national consumption," which is equal to the sum of personal consumption expenditures plus government purchases of goods and services[15]—i.e., total domestic demand excluding private investment. This variable shows an apparently alarming increase from 91.5 percent of NNP in the 1970s to 95.7 percent in the 1980s as a whole, and 96.9 percent in 1985-88. This is the basis for the frequent assertion that "we" are "consuming" 97 percent of our national product and saving or investing only 3 percent.

There are some important conceptual slips in this use of the concept of "national consumption." First, government purchases include some expenditures which are really forms of public investment (e.g., infrastructure, education, R&D). Second, many of the government purchases which could be counted as public consumption (e.g., military and administrative spending) are not socially equivalent to private consumption. While it is true that public consumption does not add to future productive capacity any more than private consumption, lumping the two together in this way obscures the important trade-offs between them, as well as among different categories of government spending.

Table 3
Consumption Relative to Net National Product
(in percent)

Percent of NNP	1960-69	1970-79	1980-88	1985-88
"National Consumption"	91.0%	91.5%	95.7%	96.9%
Personal Consumption	68.5	69.3	73.2	74.1
Government Purchases	22.6	22.2	22.5	22.8

Source: BEA, National Income and Product Accounts.

Measuring consumption relative to NNP gives an exaggerated—and misleading—impression of the rise in consumer spending in the 1980s.

Quantitatively, increased government spending is a relatively small part of the total increase in the share of "national consumption" in NNP. The increase in personal consumption expenditures accounts for most of this increase: 3.9 percent out of 4.2 percent of NNP from 1970-79 to 1980-88 and 4.8 percent out of 5.4 percent from 1970-79 to 1985-88. But measuring consumption relative to NNP gives an exaggerated—and misleading—impression of the rise in consumer spending in the 1980s. The share of consumption in NNP increased mainly because NNP was unusually depressed in the 1980s, not because consumption was unusually high. In particular, changes in the depreciation rate and the trade balance affected the consumption share of NNP in the 1980s, independently of any changes in consumer behavior.

Table 4
U.S. National Income and Product Accounts, 1988
(in billions of dollars)

Personal Consumption Expenditures	$	3,235.1
Gross Private Domestic Investment		750.3
Government Purchases		968.9
Net Exports of goods and services		- 73.7
Gross National Product	$	4,880.6
Less: Capital Consumption Allowances		- 513.6
Equals: Net National Product	$	4,367.1
Memorandum:		
Personal Consumption	$	3,235.1
Net Investment		236.7
Government Purchases		968.9
Net exports		- 73.7
Net National Product	$	4,367.1

Source: BEA, *Survey of Current Business*, July 1989.

Note: Totals may not add up exactly due to rounding.

In order to understand this point, it is helpful to recall how NNP is calculated, as shown in Table 4 for 1988. NNP is obtained by subtracting estimated economic depreciation ("capital consumption allowances") from gross national product (GNP), which in turn equals the sum of personal consumption, gross investment, government purchases and net exports.[16] Equivalently, NNP can be measured as the sum of consumption, government, *net* investment and net exports—where net investment equals gross investment minus depreciation. Depreciation was estimated to be $513.6 billion, or 10.5 percent of GNP, in 1988; hence net investment was only $236.7 billion out of a total of $750.3 billion of gross investment expenditures.

It is important to emphasize that the measure of economic depreciation used in the national income accounts is *not* influenced by changes in the tax laws (e.g., accelerated depreciation allowances).[17] The official Commerce Department (BEA) estimates of

economic depreciation are based on the assumption of fixed service lives for each type of capital good purchased in the past. Annual capital consumption allowances are then estimated using a straight-line depreciation formula. Table 5 shows that capital consumption allowances in the 1980s were 1.5 percent of GNP higher than in the 1970s and 2.7 percent higher than in the 1960s.[18] This increasing depreciation rate means that NNP has been depressed relative to GNP. As a result, consumption appears to have risen much more in proportion to NNP than to GNP, as can be seen by comparing the data in Tables 3 and 5.[19]

This increasing depreciation rate means that NNP has been depressed relative to GNP. As a result, consumption appears to have risen much more in proportion to NNP than to GNP.

Still, the personal consumption share of GNP did rise somewhat in the 1980s. This raises two related questions. First, did the share rise because consumption expenditures were relatively high, or because the national product was relatively low? And second, did consumption increase *at the expense of investment*, as implied in the argument that Americans have become more "present-oriented" and less "future-oriented"? The answer to both these questions lies in the large U.S. trade deficits of the 1980s. On the one side, the trade deficit meant that national production was depressed relative to domestic demand. On the other side, the trade deficit was financed by borrowing from abroad and the resulting net inflow of capital allowed the country to finance the large federal budget deficit without "crowding out" private investment.

Table 5
Consumption, Depreciation, and the Trade Balance in Relation to Gross National Product
(in percent)

	1960-69	1970-79	1980-88	1985-88
Percent of GNP				
"National Consumption"	83.4%	82.8%	85.0%	86.4%
Personal Consumption	62.7	62.7	65.0	66.1
Government Purchases	20.7	20.1	20.0	20.3
Capital Consumption Allowances	8.4	9.6	11.1	10.8
Net Exports of Goods and Services	1.1	0.8	-0.8	-2.1

Source: BEA, National Income and Product Accounts.

In order to see how the trade deficit affects the results, it is helpful to measure consumption *as a share of domestic demand*, rather than as a share of national production. Table 6 shows how some measures of domestic demand are calculated in the national income accounts, using 1988 data. By subtracting net exports of goods and services (the trade balance) from GNP, we get "gross domestic purchases." Gross domestic purchases are also equal to the sum of consumption, government and gross investment expenditures.[20] Since the U.S. ran a trade deficit in 1988, gross domestic purchases exceeded GNP.[21] Gross domestic purchases, however, include the annual change in business inventories, which is counted as part of gross investment, but does not reflect *final* demand for currently produced goods and services. By subtracting the change in business inventories from gross domestic purchases, we obtain "final sales to domestic purchasers" (FSDP, equal to the sum of personal consumption, government purchases, and gross *fixed* investment), which is a more reliable measure of current domestic demand.

In order to see how the trade deficit affects the results, it is helpful to measure consumption as a share of domestic demand, rather than as a share of national production.

According to Table 5, net exports of goods and services fell from 0.8 percent of GNP in the 1970s to -0.8 percent in the 1980-88 period and fell even further to -2.1 percent in 1985-88. This fall in

the trade balance in turn depressed GNP (as well as NNP) relative to FSDP since it meant that the national product fell below domestic demand. Table 7 gives data on the composition of FSDP for the last three decades.

Table 6
U.S. Domestic Demand, 1988
(in billions of dollars)

Gross National Product		$4,880.6
Less: Net Exports of Goods and Services	-	(-73.7)
Equals: Gross Domestic Purchases		4,954.3
Less: Change in Business Inventories	-	30.6
Equals: Final Sales to Domestic Purchasers		4,923.7
Memoranda:		
Personal Consumption		3,235.1
Gross Private Investment		750.3
Government Purchases		968.9
Gross Domestic Purchases		4,954.3
Personal Consumption		3,235.1
Gross Fixed Investment		719.6
Government Purchases		968.9
Final Sales to Domestic Purchasers		4,923.7

Source: BEA, *Survey of Current Business*, July 1989.

Note: Totals may not add up exactly due to rounding.

Table 7
Composition of U.S. Domestic Demand
(in percent)

Percent of Final Sales to Domestic Purchasers	1960-69	1970-79	1980-88	1985-88
"National Consumption"	85.2%	84.1%	84.6%	85.1%
Personal Consumption	64.1	63.7	64.8	65.0
Government Purchases	21.1	20.4	19.9	20.0
Fixed Investment	14.8	15.9	15.4	14.9

Source: BEA, National Income and Product Accounts.

The most striking thing about the data in Table 7 is the remarkable constancy in the shares of "national consumption" (personal consumption and government purchases together) and fixed investment over time. While the "national consumption" share in 1985-88 was 1.0 percent higher than in the 1970s, it was still 0.1 percent *lower* than in the 1960s (and conversely for the fixed investment share). Personal consumption was 0.9 percent of FSDP higher in 1985-88 than in the 1960s but this entire increase is more than accounted for by the 1.1 percent fall in the government share.[22] There is simply no evidence for a long-run shift of domestic final demand toward personal consumption at the expense of private investment.[23]

There is simply no evidence for a long-run shift of domestic final demand toward personal consumption at the expense of private investment.

It could be objected that total domestic demand—including investment as well as consumption and government spending—is excessive relative to national income and therefore (by definition) the country is "living beyond its means." But it could equally well be said that the country is "producing below its needs"—i.e., that American industry is failing to keep up with domestic demand, as a rising proportion of both consumption and investment goods comes from abroad. It can also be said that at least part of our trade deficit is due to other countries "failing to live up to their means"[24] as a result of restrictive macro policies, low wages, the debt crisis and undervalued currencies.

There is abundant evidence that at least part of the rise in the trade deficit in the 1980s was due to factors that are exogenous with respect to domestic spending behavior.

This brings us to the crucial issue of the direction of causality as between the foreign trade deficit and the excess of domestic demand over national income—the two sides of the identity on page 5 above. A detailed discussion of this issue would be beyond the scope of this report.[25] For present purposes, it is sufficient to note that, in general, the causality may run in both directions. Moreover, there is abundant evidence that at least part of the rise in the trade deficit in the 1980s was due to factors that are exogenous with respect to domestic spending behavior. For example, it is now generally acknowledged that by 1985 the dollar had risen far beyond what the "economic fundamentals" (relative interest rates, etc.) would justify and that this "speculative bubble" in the foreign exchange market contributed significantly to worsening the trade deficit (Helkie and Hooper, 1988; Dornbusch, 1988; Krugman, 1989). The monetary tightening by the Federal Reserve (which would tend to depress domestic demand, not to raise it) also contributed to the rise in the dollar, while the Latin American debt crisis weakened U.S. exports of manufactures. Furthermore, there is much evidence that part of the U.S. trade deficit can be attributed to a long-term secular decline in competitiveness, which implies that the trade balance consistent with any given exchange rate falls continuously over time (Krugman and Baldwin, 1987).[26] None of these factors are caused by the consumer spending behavior of U.S. households.

In order to see whether the real problem is excessive growth of U.S. consumer demand or inadequate growth of U.S. national production (and income), it is instructive to compare the growth of these aggregates over time. Table 8 gives average annual growth rates which are computed on a cyclical peak-to-peak basis using seasonally adjusted quarterly data.[27] It should be noted that treating 1989-IV (the most recent quarter for which data are available) as if it were a cyclical peak may exaggerate the 1980s growth rates, since growth is likely to slow down even more before the economy enters its next recession. Thus, if anything, the growth rates for the 1980s in Table 8 are slightly overstated.

Real personal consumption expenditures (both aggregate and per capita) did grow slightly more rapidly in the 1980-89 cycle[28] than in 1973-80. However, government purchases accelerated much more than personal consumption, while exports grew much more slowly. Thus consumer spending can hardly be blamed for the growing imbalance between domestic demand and national

income. Moreover, the 1973-80 business cycle was a period of generally depressed growth, with two oil price shocks and record peacetime inflation. If we take a longer historical perspective and

Table 8
Average Annual Growth Rates of Real GNP and Components in 1982 Dollars, Cyclical Peak-Peak Growth Based on Seasonally Adjusted Quarterly Data
(All figures in percent)

	1969-III to 1973-IV	1973-IV to 1980-I	1969-III to 1980-I	1980-I to 1989-IV
Aggregate				
GNP	3.03%	2.55%	2.74%	2.65%
Personal Disposable Income	4.40	2.20	3.09	2.89
Personal Consumption Expenditures	3.46	2.89	3.12	3.02
Fixed Investment	4.88	2.35	3.37	2.36
Government Purchases	-1.06	1.46	0.43	2.79
Exports[a]	9.87	7.48	8.44	4.37
Imports[a]	7.06	4.10	5.29	6.45
Per Capita				
GNP	1.91	1.51	1.67	1.63
Personal Disposable Income	3.26	1.17	2.01	1.87
Personal Consumption Expenditures	2.33	1.84	2.04	2.00
Memorandum:				
Population	1.10	1.03	1.06	1.00

Source: BEA, National Income and Product Accounts; 1989-IV data are from the first revision, February 28, 1990. Population for 1989 - IV is from *Economic Indicators*, January 1990.

a. Goods and services, national income accounts basis.

Consumption actually grew more slowly in the 1980s than previously, both in the aggregate and per capita.

compare the 1980-89 cycle with the whole period 1969-80 (covering two business cycles), we see that consumption actually grew more slowly in the 1980s than previously, both in the aggregate and *per capita*. There is no evidence for a sharp acceleration of consumption growth in the 1980s.

Real GNP and personal disposable income both grew more slowly than personal consumption expenditures in the 1980-89 period, both in the aggregate and per capita. The average propensity to consume out of disposable income increased in the 1980s because the reduction in the growth of disposable income was greater than the reduction in the growth of personal consumption (compared with the 1969-80 period). No matter how the data in Table 8 is viewed, they do not support the notion of a personal consumption "binge" in the 1980s. While one could possibly argue that consumers have not "adjusted" to the slower growth of their disposable incomes, it is simply inaccurate to assert that they have been on a "spending spree" relative to past trends.

The evidence surveyed thus far suggests that average real consumption growth has not been unusually rapid in the 1980s; that personal consumption has increased only slightly as a share of total final demand since the 1960s (and at the expense of government purchases, not investment spending); and that consumption appears excessive relative to national income largely because national income has been depressed in the 1980s—partly by high depreciation allowances and partly by the trade deficit. Any remaining increase in consumption *relative* to income can be explained by (a) increased spending by the wealthy or (b) an effort to recoup losses in living standards—not a generalized outburst of hedonism.

Sources of Increased Consumption

The conclusions from the above analysis of consumption spending in the 1980s can be tested more formally by using econometrics. The vehicle for testing such hypotheses is what economists call the "consumption function:" an equation which shows how consumption expenditures depend on certain variables, such as income and wealth. Using time-series data (annual, in this case), we can estimate the effects of changes in such variables on consumption over time. The study of *Overconsumption* by Hatsopoulos *et al.* (1989) contains a consumption function analysis which is very useful for present purposes. I have made a few minor modifications in their

Disposable income...can be disaggregated into labor and capital income plus transfers minus taxes in order to measure the effects of changes in income distribution and fiscal policies.

econometric model but none which affect the main conclusions that can be drawn from the analysis. The details of the econometric estimation are given in the Appendix; what follows here is an intuitive discussion of the results.

I used the ratio of personal consumption to GNP to measure the consumption rate. I chose this measure because it increased notably in the years 1985-88, the height of the alleged "consumption binge," and because this ratio is not affected by the rising depreciation rate.[29] The variables used to explain the consumption-GNP ratio were:

1. The ratio of personal disposable after-tax income to GNP. The effect of this variable on the consumption rate is called the "marginal propensity to consume," and is found to be about .86 (i.e., households spend about $0.86 out of every additional $1.00 they receive). Disposable income in turn can be disaggregated into labor and capital income plus transfers minus taxes in order to measure the effects of changes in income distribution and fiscal policies.

2. The ratio of personal wealth (measured by the increase in household net worth) to GNP. Although this effect appears small (about $0.02 of spending out of every $1.00 of wealth), it is important because wealth is large relative to income (roughly 4 1/2 times disposable income). The personal wealth-GNP ratio rose substantially in the 1980s, due to the rise in real estate and stock market values, as well as the growth of both government and corporate debt held by the public.[30]

3. Following Hatsopoulos *et al.* (1989), an estimate of the after-tax cash receipts from corporate takeovers (mergers and acquisitions) is also included, since these receipts (which are not included in the national income account statistics on disposable income) soared in the mid-1980s.[31] This effect is surprisingly large: I estimate that $0.57 out of every $1.00 of cash receipts was spent on consumption.[32]

4. The ratio of "prime savers" (population between ages 45 and 64) to "prime borrowers" (ages 25 to 44). This variable, which is suggested by Christian (1989), is used to represent demographic factors affecting aggregate consumption expenditures. While, as we have seen, the evidence for the life-cycle hypothesis as an explanation of consumption/saving behavior is mixed at best, it is

still important to control for demographic shifts in a multivariate analysis of consumption spending.[33]

Table 9
Sources of Increased Consumption, 1970-79 to 1985-88
(in percent of GNP, except as noted)

	Change in Variable	Effect on Consumption	Percent of Actual Increase
Personal Disposable Income	+1.1%	+0.9%	27%
Labor income[a]	-1.4	-1.2	-34
Interest income	+4.2	+3.6	106
Other capital income[b]	-1.9	-1.6	-48
Transfers	+1.8	+1.5	44
Personal Taxes[c]	+1.7	-1.4	-41
Personal Wealth[d]	+17.8	+0.4	10
Cash Receipts from Takeovers[e]	+1.1	+0.6	18
Prime Savers/Prime Borrowers[f]	-.216	+1.3	39
Total Explained Increase		+3.2%	94%
Actual Increase in Personal Consumption	+3.4%		100%

Source: Author's calculations. See Appendix for more details. Data are from the BEA, National Income and Product Accounts; Federal Reserve, *Balance Sheets* and *Flow of Funds;* Census Bureau; Grimm's *Mergerstat Review;* and Hatsopoulos *et al.* (1989).

a. Wages, salaries and other labor income.
b. Personal dividends, rents and proprietary income.
c. Personal income taxes and contributions for social insurance.
d. Household net worth.
e. After-tax cash realizations from mergers and acquisitions.
f. Ratio of population aged 45-64 to population aged 25-44 (not measured relative to GNP).

Table 9 gives estimates of the sources of the increased consumption-GNP ratio between 1970-79 and 1985-88. Slightly more than half (55 percent) of the increase is attributed to the effects of higher disposable income, personal wealth and cash receipts from corpo-

The income, wealth and takeover variables together can be interpreted as supporting our view that it was mainly the wealthiest households who were "overconsuming" in 1985-88.

rate takeovers (relative to GNP). The demographic variable accounts for most of the remainder (39 percent) of the rise in the consumption-GNP ratio; this would appear to represent a "benign" change in aggregate behavior due to a change in the age-composition of the population.

The income, wealth and takeover variables together can be interpreted as supporting our view that it was mainly the wealthiest households who were "overconsuming" in 1985-88. This interpretation is easily verified for the personal wealth and cash receipts effects, since the ownership of wealth (including corporate stock) is very highly concentrated.[34] About half of all American families had $15,000 or less of net worth in 1983 (the year of the most recent comprehensive Survey of Consumer Finances), while the median family in the richest 10 percent had roughly $130,000. The richest 10 percent of families, which received 33 percent of personal income, held 57 percent of household net worth and 86 percent of net financial assets. The top 10 percent of families also owned 72 percent of corporate stock; the top 2 percent alone owned 50 percent of corporate stock.

Furthermore, if we disaggregate the change in disposable income as a percentage of GNP, we find that the increase in this variable is more than accounted for by an enormous rise in personal interest income, while both labor income and other capital income (dividend, rental, and proprietary) fell, relative to GNP. The 1983 Survey of Consumer Finances shows that the top 10 percent of families in the distribution of income own the lion's share of all interest-bearing assets: 51 percent of liquid assets (bank deposits, etc.), 86 percent of tax-exempt municipal bonds and 70 percent of other bonds. The concentration of interest income should be similar to the concentration of interest-bearing assets.[35]

The data in Table 9 reveal that income taxes rose by 1.7 percent of GNP from 1970-79 to 1985-88, while transfers increased by only a slightly higher percentage (1.8 percent). In this respect, there was little net effect of changes in fiscal policy on aggregate disposable income between these two periods. The common view that the tax policies of the 1980s fueled the "consumption binge" by putting more disposable income in households' pockets across-the-board is therefore simply incorrect. At the aggregate level, the cuts in federal income tax rates were more than offset by increases in social insurance contributions (Social Security and related payroll taxes) as well as state and local income taxes.

However, this does not mean that fiscal policy had no impact at all on disposable income and personal consumption in the 1980s. The federal budget deficits increased the federal debt held by the public from 25.1 percent of GNP in 1979 to 41.6 percent in 1988[36]; this contributed significantly to the rise in personal interest income.[37] In addition, fiscal policy changes contributed to the worsening distribution of income, as effective tax rates were reduced only for the richest tax brackets (especially since increases in Social Security taxes offset the lower income tax rates for most families, but not for those with substantial capital income or high salaries), while interest payments on the federal debt went disproportionately to the wealthy.[38]

The common view that the tax policies of the 1980s fueled the "consumption binge" by putting more disposable income in households' pockets across-the-board is...simply incorrect.

Unfortunately, the hypothesis that consumers have been trying to recover the growth of their living standards after a fall-off in the growth of income cannot easily be tested using the consumption-function approach. Such a test would involve comparisons over long periods of historical time (i.e., decades), while consumption functions are usually estimated with annual data. However, the econometric results are not inconsistent with this hypothesis. After all, consumers could not start to catch up in consumption until their disposable income and wealth positions permitted them to do so. Since the Consumer Expenditure Survey data (in Table 2, above) shows that only the highest quintile of the population experienced significant growth of real consumption in the 1980s, it may be inferred that only households with large assets and high interest income were able to catch up, while the rest remained behind.

The Evidence on Saving

It is undeniable that the nation as a whole has become a net importer of capital, borrowing an average of 3.0 percent of GNP each year between 1985 and 1988.

The previous section has shown that the talk of a rampant "consumption binge" is greatly exaggerated, at the very least, and grossly misleading, at worst. But what of the "saving shortfall" argument? It is undeniable that the nation as a whole has become a net importer of capital, borrowing an average of 3.0 percent of GNP each year between 1985 and 1988. In this respect, there is by definition a shortfall of *national* saving. But the "shortfall" in this sense cannot be attributed to a generalized decline in *private* sector thriftiness in the United States.

The argument for a private saving shortfall is usually framed around the type of saving data given in Table 10.[39] This table shows that *net national* saving (the sum of net private saving plus government saving) dropped sharply from 7.9 percent of NNP in the 1970s to 3.4 percent in the 1980s as a whole, and only 2.3 percent in 1985-88. This drop is essentially the mirror image of the rise in the net national consumption rate (relative to NNP) shown in Table 3, above.

Out of the total 4.5 percent drop in the net national saving rate from 1970-79 to 1980-88, more than half (2.5 percent) is due to the increased federal budget deficit. Out of the larger 5.6 percent drop from 1970-79 to 1985-88, the contribution of the federal deficit is still almost half (2.7 percent). The federal budgetary contribution to the national saving shortfall would be slightly larger if we exclude the so-called "off-budget" items (Social Security and other trust funds). The "off-budget" surplus reached $38.8 billion in fiscal 1988 and is projected to be $52.8 billion in fiscal 1989 (*Economic Indicators*, January 1990), which is more than one percent of NNP. State and local governments, on the other hand, have increased their surpluses by 0.5 percent of NNP from the 1970s to the 1980s. Much of this increase is accounted for by state and local government contributions to pension funds, which would be counted as personal saving if they were made by private sector employers (Gramlich, 1989).

Table 10
Net Saving Rates
(in percent)

	1960-69	1970-79	1980-88	1985-88
Percent of NNP				
Net National Saving	8.6%	7.9%	3.4%	2.3%
Net Private Saving	8.9	8.9	6.3	5.4
Personal Saving	5.1	6.2	4.3	3.2
Net Corporate Saving	3.8	2.7	2.0	2.2
Total Government Surplus	-0.3	-1.1	-2.9	-3.1
Federal Budget Surplus	-0.3	-1.9	-4.4	-4.6
State and Local Budget Surplus	0.0	0.9	1.4	1.5
Memorandum				
Personal Saving + State and Local Budget Surplus	5.1	7.1	5.4	4.7

Source: BEA, National Income and Product Accounts.

The net private saving rate fell from 8.9 percent of NNP in 1970-79 to 6.3 percent in 1980-88, and only 5.4 percent in 1985-88. Most of this fall is attributed to a decrease in measured personal saving, from 6.2 percent of NNP in 1970-79 to 4.3 percent in 1980-88, and a mere 3.2 percent in 1985-88. However, if the state and local budget surpluses are added onto personal saving, the personal saving rate was actually higher in 1980-88 than in 1960-69 and only slightly lower in 1985-88 than in 1960-69. The net corporate saving rate fell slightly from 1970-79 to 1980-88 but recovered somewhat in the latter part of the 1980s—and the greatest fall in this rate came between the 1960s and the 1970s.

Net private saving is measured by subtracting economic depreciation (capital consumption allowances) from gross private saving, as shown in Table 11 for 1988. This raises the question whether the private sector is actually doing less gross saving than in the past or is rather being squeezed by higher depreciation rates. The answer is mainly the latter since the share of depreciation (capital consumption allowances) in GNP soared in the 1980s (see Table 5, above). If we are concerned about the total supply of funds in capital markets, gross saving is surely the more appropriate measure of that supply.

If we are concerned about the total supply of funds in capital markets, gross saving is surely the more appropriate measure of that supply.

Gross saving rates are given in Table 12. Gross private saving was 16.7 percent of GNP in 1980-88. This figure is a mere 0.9 percent lower than for 1970-79 and 0.1 percent *higher* than for 1960-69. The gross private saving rate dropped somewhat more in 1985-88 but not by nearly as much as the corresponding net rate. Note also that the increased federal deficit accounts for 2.2 of the 2.4 percent of GNP drop in gross national saving from 1970-79 to 1980-88 and for 2.4 out of the 3.9 percent drop from 1970-79 to 1985-88. In gross terms, then, the decline in private saving is relatively small.

Table 11
Gross and Net Private Saving, 1988
(in billions of dollars)

Personal Saving	$	144.7
Gross Corporate Saving[a]		402.0
Noncorporate Capital Consumption[b]		191.9
Gross Private Saving	$	738.6
Less: Capital Consumption Allowances		-513.6
Equals: Net Private Saving	$	225.0
Memorandum:		
Personal Saving	$	144.7
Net Corporate Saving[c]		80.3
Net Private Saving	$	225.0

Source: BEA, *Survey of Current Business*, July 1989.

Note: Corporate profits include the capital consumption and inventory valuation adjustments. Capital consumption allowances include the capital consumption adjustment.

a. Undistributed after-tax net corporate profits plus corporate capital consumption allowances.
b. Consists of allowances for residential and unincorporated business depreciation.
c. Undistributed after-tax net corporate profits.

Table 12 does show a decline in personal saving as a percentage of GNP in the 1980s. Historically, however, the lion's share of gross private saving in the United States has always been provided by business saving (cash flow or retained profits plus depreciation allowances), not by personal saving. Table 12 presents two measures of overall cash flow. First, gross corporate saving (net retained after-tax profits plus depreciation) was 8.6 percent of GNP in the 1980s, which is actually *higher* than in the 1960s or 1970s. Second, gross business saving (equal to net corporate saving plus all nonresidential depreciation allowances) was also higher in the 1980s than in the previous two decades. And neither of these measures declined in 1985-88. Clearly, *there was no shortage of cash flowing through the coffers of American business in the 1980s.*

Historically...the lion's share of gross private saving in the United States has always been provided by business saving...not by personal saving.

Table 12
Gross Saving Rates
(in percent)

	1960-69	1970-79	1980-88	1985-88
Percent of GNP				
Gross National Saving	16.3%	16.7%	14.1%	12.8%
Gross Private Saving	16.6	17.6	16.7	15.5
Personal Saving	4.6	5.6	3.8	2.8
Gross Corporate Saving (cash flow)	8.3	8.1	8.6	8.6
Net Corporate Saving	3.5	2.5	1.7	2.0
Corporate Capital Consumption Allowances	4.8	5.6	6.8	6.7
Total Government Surplus	-0.3	-1.0	-2.6	-2.7
Federal Budget Surplus	-0.3	-1.7	-3.9	-4.1
State and Local Budget Surpluses	0.0	0.8	1.3	1.3
Memoranda:				
Gross Business Saving (cash flow)	10.0	9.8	10.4	10.4
Net Foreign Investment	0.6	0.2	-1.6	-3.0

Source: BEA, National Income and Product Accounts.

However, the robust performance of total gross corporate and business savings conceals some important shifts in the behavior of nonfinancial corporations relative to the financial and household sectors. As Table 13 shows, the overall cash flow in the nonfinancial corporate business (NFCB) sector was higher in the 1980s than in recent decades, as a percentage of the sector's gross domestic product (GDP). Part of this improved performance was evidently due to a reduced effective tax burden, which appears to have offset other, adverse changes. NFCB net profits (excluding depreciation and

interest but including taxes and dividends) were a lower share of GDP in the 1980s than in the past, due to a rising interest share as well as the rising depreciation rate.

Interestingly, the total payout of the NFCB sector to stockholders and bondholders (i.e., dividends plus net interest as a percentage of GDP) increased in the 1980s. Since most of this payout goes to households, either directly or indirectly (via pension funds, mutual funds, and other financial intermediaries), the retained earnings (net savings) of the NFCB sector were squeezed, while the incomes of asset-owning households were swelled (as shown in Table 9, above). This redistribution of income from corporations to households would be expected to lower the overall private saving rate since corporations save 100 percent of their retained earnings (by definition) while households save only a fraction of their interest and dividend income (14 percent on average, according to the econometric analysis discussed in the previous section).

This redistribution of income from corporations to households would be expected to lower the overall private saving rate.

Table 13
Nonfinancial Corporate Business Sector Profits and Related Measures

(in percent)

	1960-69	1970-79	1980-88	1985-88
Percent of Sector GDP				
Cash Flow	13.4%	12.4%	13.5%	13.8%
Depreciation[a]	8.5	9.7	11.4	11.1
Retained Earnings[b]	4.9	2.7	2.1	2.6
Net Profits[c]	15.4	10.6	8.7	9.3
Tax Liability	6.7	5.1	3.4	3.5
Total Payout	5.5	5.9	7.1	7.2
Net Interest	1.7	3.0	3.9	4.0
Dividends	3.8	2.9	3.2	3.1

Source: BEA, National Income and Product Accounts.

a. Capital consumption allowances with capital consumption adjustment.

b. Undistributed profits with inventory valuation adjustment and capital consumption adjustment.

c. Net profits are equal to the sum of retained earnings, tax liability, and dividends.

The first line in Table 14 shows the decline in the conventional personal saving rate, as a percentage of disposable income, in the 1980s. As in the case of the personal consumption rate, almost all the decline is really concentrated in 1985-88 only; the average personal saving rate for 1980-84 (not shown in the table) was 6.5 percent, almost as high as in 1950-69. And even the big drop in the personal saving rate in 1985-88 may turn out to have been just a temporary dip. Already in 1989, this rate was back up to 5.4 percent from an average of 4.0 percent in 1985-88, according to advance estimates of the 1989 annual national income accounts. This supports the view that the high personal consumption rates of 1985-88 were partly the product of transitory catch-up behavior.

Table 14
Alternative Personal Saving Rates
(in percent of disposable income)

	1950-59	1960-69	1970-79	1980-88	1985-88
Personal Saving	6.8%	6.7%	8.0%	5.4%	4.0%
Increase in Household Net Worth	31.5	27.0	38.9	33.8	32.1
Inflation-Adjusted[a] Personal Saving	5.9	6.0	6.1	4.1	3.2
Inflation-Adjusted[b] Increase in Household Net Worth	19.1	14.0	8.4	11.2	18.5

Source: BEA, National Income and Product Accounts, and Federal Reserve, *Balance Sheets for the U.S. Economy 1949-1988*, October 1989.

a. Personal saving minus the product of the inflation rate (percentage change in GNP deflator) and the nominal value of interest-bearing household assets.

b. Nominal increase in household net worth minus the product of the inflation rate and nominal net worth.

There are several conceptual problems with this conventional measure of personal saving, however. In principle, personal saving equals the net increase in the value of households' stocks of assets (real estate, bonds, equity, bank deposits, pension funds, etc.) to provide for future consumption and bequests. However, the national income accounts measure personal saving simply as the residual left over after "personal outlays" (consumption expenditures plus consumer interest payments and personal transfers to foreigners) are subtracted from after-tax "personal disposable income."

The conventional measure of disposable income includes only income from current "factor services" (wages of labor, rent of land, interest and dividends on capital) and not income from sales of existing assets (capital gains). More importantly, measuring saving as a residual ignores the appreciation of existing assets (both realized and unrealized capital gains), which provides for future consumption just as much as saving out of current income. Furthermore, measuring saving in nominal dollars ignores the fact that inflation eats away at the real value of existing assets; thus the high nominal personal saving rate of the 1970s is misleading because

Measuring saving as a residual ignores the appreciation of existing assets...which provides for future consumption just as much as saving out of current income.

While the standard personal saving rate... clearly fell below its historical trend in the 1980s, the ratio of the increase in net worth to disposable income did not.

part of this saving had to compensate for the high inflation of that decade. These problems are in addition to the exclusion of state and local government pension fund contributions, discussed above.

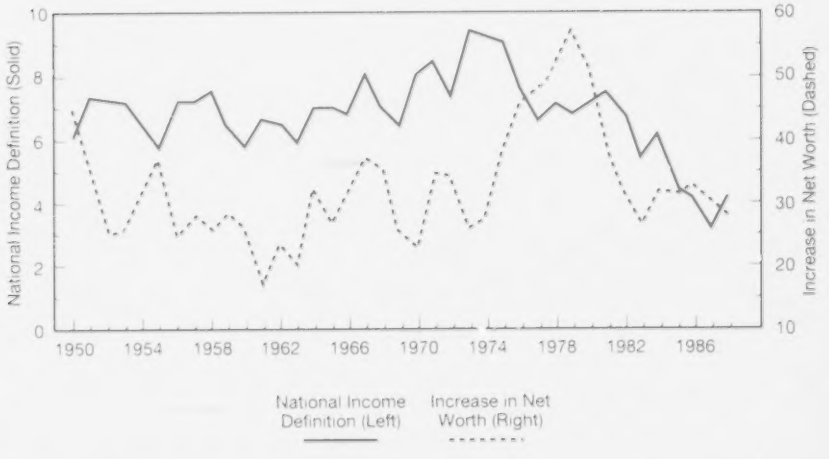
Table 14 presents some alternative measures of personal saving in order to evaluate the importance of these problems. From the Federal Reserve's *Balance Sheets for the U.S. Economy*, we can measure the increase in (nominal) personal wealth by the change in household net worth, which includes capital gains (both realized and unrealized) along with net acquisitions of assets. The (nominal) increase in household net worth averaged 33.8 percent of disposable income in the 1980s, which is lower than the average for the 1970s but higher than for the 1950s and 1960s. From a long-term perspective, at least, there is no saving shortfall by this measure.

Figure 3a confirms that while the standard personal saving rate ("national income definition") clearly fell below its historical trend in the 1980s, the ratio of the increase in net worth to disposable income did not. If anything, the latter ratio was unusually high in the late 1970s and near its long-term trend in the 1980s.

Figure 3a

Alternative Personal Saving Rates

(In percent of disposable income)



Note: The increase in net worth is measured as a 3-year moving average.

Table 14 also shows the effect of making some (admittedly crude) adjustments to the saving rates for inflation. These adjustments do not radically alter the picture for the national-income-account personal saving rate but they do dramatically change the picture for the increase-in-net-worth measure. When corrected for inflation, the average real increase in household net worth was higher (as a percentage of disposable income) in 1985-88 than for any decade since the 1950s. Figure 3b shows that the low average inflation-adjusted increases in net worth for the 1960s and 1970s were largely due to the inflationary outbursts of 1969-70 and 1973-74. This inflation-adjusted measure shows that the high nominal increases in net worth in the late 1970s were simply a response to inflation. The inflation-adjusted increase in net worth in 1985-88 is very close, as a percentage of disposable income, to what it was before the inflation of the 1970s.

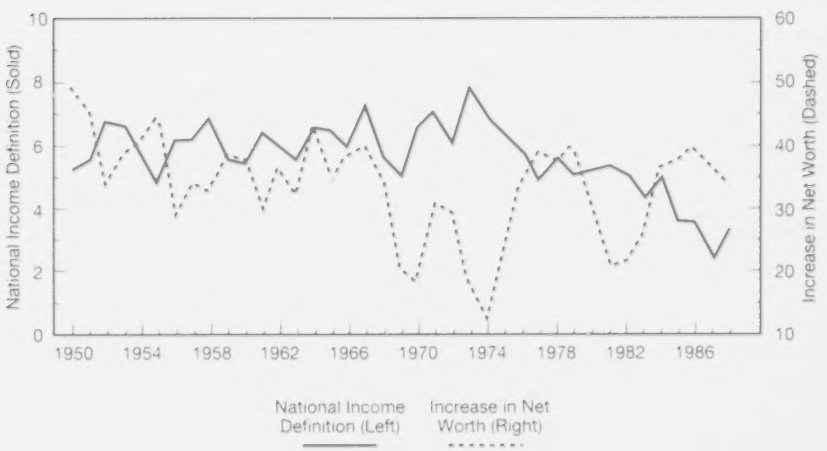
Since the increase in net worth was due in large part to the appreciation of existing wealth in the mid-1980s, the wealthy could afford to increase their consumption expenditures out of current income while still saving enough (in real terms) for the future. In this respect, even those who could afford to go on a "spending spree" were not thereby depleting the value of the nation's assets.

When corrected for inflation, the average real increase in household net worth was higher (as a percentage of disposable income) in 1985-88 than for any decade since the 1950s.

Figure 3b

Inflation-Adjusted Personal Saving Rates

(In percent of disposable income)



Note: The increase in net worth is measured as a 3-year moving average.

The data are too contradictory to support sweeping generalizations about a "saving shortfall" in the private sector.

Indeed, the wealthy were partly creating their own purchasing power through their speculation in the stock market, real estate and other asset markets.

In conclusion, the data are too contradictory to support sweeping generalizations about a "saving shortfall" in the *private* sector. While net corporate saving has fallen slightly, relative to national income, this decline dates back to the 1970s and is mainly due to swollen depreciation allowances and interest costs. Gross business (corporate and total) saving or cash flow has done extremely well in this decade. Although conventionally measured personal saving rates were at historical lows in 1985-88, some broader measures were not, and even the conventional measure partly recovered in 1989. Strictly in an accounting sense, the main source of the fall in gross national saving as a percentage of GNP in the 1980s was the increased federal budget deficit, not private saving. Efforts to skirt this issue by seeking more incentives for private saving are simply off target.

The Evidence on Investment

Net fixed investment as a share of NNP...was substantially lower in the 1980s... If we look at gross rather than net investment, however, we get a radically different impression.

In all the discussions of "overconsumption" and the "saving shortfall," the bottom line is whether these alleged problems have reduced (or will reduce) productive investment. In the final analysis, after all, it is productive investment that provides for economic growth; saving merely finances this investment. It would be beyond the scope of this report to give a comprehensive analysis of the determinants of investment here. This section will be concerned only with the narrow question of whether aggregate investment spending was held down in the 1980s by the alleged "saving shortfall."

Table 15 shows that *net* fixed investment as a share of NNP (in current dollars) was substantially lower in the 1980s than in previous decades, whether measured in current or constant (1982) dollars. The share of net non-residential (business) fixed investment is also lower in the 1980s than previously, although the difference is small in real terms (for reasons that will become clear below).

If we look at gross rather than net investment, however, we get a radically different impression. In current dollars, the share of gross fixed investment in GNP was only slightly lower in the 1980s than in the 1970s and higher than in the 1960s. For gross non-residential fixed investment, the share for the 1980s as a whole was higher than for the 1970s as well as for the 1960s; this share fell slightly in 1985-88, but still remained above its 1960s average. In constant (1982) dollars, the gross fixed investment share was higher in the 1980s than in either of the previous two decades. The same is true for gross fixed non-residential investment in constant dollars.

One should not be too impressed with the fact that the "real" (constant dollar) gross fixed investment shares (both total and non-residential) seem to have been at record highs in 1985-88. Some (e.g., Roberts, 1989) have interpreted these data to demonstrate the success of the "Reagan Revolution." However, the high "real" shares are a function of the use of 1982 prices as weights in calculating "real" magnitudes. Reagan's policies did not induce firms to

spend more current dollars for investment, as a share of GNP, than they typically spent in the past. Rather, since firms were buying more of the types of equipment which were falling most rapidly in relative price (especially computers), the use of 1982 prices gives an exaggerated impression of the proportion of that equipment to total output in later years.

Table 15
Investment Data
(in percent)

	1960-69	1970-79	1980-88	1985-88
In Current Dollars				
Net Fixed Investment/NNP	6.6%	6.7%	4.8%	4.9%
Net Fixed Non-Residential/NNP	3.7	3.7	2.5	2.1
Net Residential/NNP	2.9	3.0	2.3	2.8
Gross Fixed Investment/GNP	14.5	15.6	15.4	15.2
Gross Fixed Non-Residential/GNP	9.8	10.7	10.9	10.3
Gross Residential/GNP	4.7	4.9	4.5	4.9
In Constant (1982) Dollars				
Net Fixed Investment/NNP	7.2	7.0	5.3	5.9
Net Fixed Non-Residential/NNP	3.8	3.7	3.0	3.0
Net Residential/NNP	3.4	3.3	2.3	2.9
Gross Fixed Investment/GNP	15.5	16.4	16.5	17.1
Gross Fixed Non-Residential/GNP	10.3	11.1	11.9	12.1
Gross Residential/GNP	5.2	5.3	4.6	5.0

Source: BEA, National Income and Product Accounts.

The better performance of gross investment... indicates clearly that the principal factor depressing net investment in the 1980s was the high rate of depreciation—not overconsumption.

The really interesting contrast in the investment data is between the net and gross figures. The better performance of gross investment—whether in nominal or "real" terms—indicates clearly that the principal factor depressing net investment in the 1980s was the high rate of depreciation—not overconsumption. The high rate of depreciation in turn is the result of two factors: (1) the growth slowdown of the 1970s and 1980s and (2) a shift toward investment in capital goods with shorter service lives.

The effect of the growth slowdown on depreciation and net investment is analyzed by Pieper (1989). Pieper shows that slower economic growth reduces net investment because "past investment levels, and thus current depreciation, will be larger relative to current investment when output growth is low..." (p. 4). Pieper argues that the reduction in GNP growth from an average of 3.7 percent per year in 1948-73 to 2.4 percent in 1973-87 has made depreciation charges on the older (pre-1973) capital stock high relative to current investment spending. In this respect, low net investment today is not the result of decisions taken today but rather a consequence of changes in the growth rate which occurred in the past.

The changing composition of investment can be seen from the data in Table 16, which gives various decompositions of real gross fixed investment expenditures over the last three decades. There is a pronounced shift away from structures (buildings and facilities), which are longer-lived, and toward producers' durable equipment, which is shorter-lived. Only a small part of this overall decline in structures is due to a fall in the share of residential structures; most of this decline is due to the sharp decrease in the share of private non-residential structures—industrial and commercial buildings, transportation and utility facilities, etc. Within non-residential fixed investment, there is an especially notable shift away from structures and towards equipment. And the greatest proportional decline of all is in industrial structures—i.e., factory buildings.

Table 16
Composition of Fixed Investment in Constant 1982 Dollars

(in percent)

	1960-69	1970-79	1980-88	1985-88
Shares of Gross Fixed Investment				
Non-Residential	65.9%	67.5%	72.5%	70.8%
Residential	34.1	32.5	27.5	29.2
Total	100.0	100.0	100.0	100.0
Structures	63.4	56.7	50.7	8.5
Equipment	36.6	43.3	49.3	51.5
Total	100.0	100.0	100.0	100.0
Shares of Non-Residential Fixed Investment				
Equipment	54.9	63.1	67.1	71.4
Structures	45.1	36.9	32.9	28.6
Total	100.0	100.0	100.0	100.0
Memorandum:				
Industrial Structures	7.4	4.7	3.5	2.9
Shares of Non-Residential Equipment				
Information Processing	11.4	15.9	36.1	43.4
Industrial	34.9	31.4	23.0	19.6
Transportation	25.8	24.7	19.5	18.8
Other	27.9	27.9	21.3	18.2
Total	100.0	100.0	100.0	100.0

Source: BEA, National Income and Product Accounts.

If we further disaggregate and look at the types of durable equipment in which business firms have been investing, we find further evidence of a shift toward shorter-lived types. The share of information processing and related equipment in total non-residential equipment has risen nearly four-fold, squeezing out all other types of equipment. The actual extent of this change is debatable since it depends on the precise conventions adopted by the BEA in determining "real" purchases of computers and other electronic equipment.[40] In particular, the use of 1982 prices undoubtedly

exaggerates the "real" proportion of these goods (and therefore of total equipment) in later years since their prices fell sharply in the mid-1980s. But while there is no perfect way of measuring real investment in such a rapidly changing environment, at least the direction of the shifts in investment spending is undeniable.

A deeper question is why investment has shifted in the direction of a higher proportion of shorter-lived types of equipment. Undoubtedly, the technological innovations which have revolutionized electronics and computing and which have brought electronics devices and computers into every conceivable industry and occupation, must account for a large part of the surge in the share of information processing in total equipment—and in the share of equipment in total fixed investment. The changing composition of output and location of production also affect the composition of investment. Deindustrialization[41] generally, and the manufacturing trade deficit in particular, imply less demand for new or expanded factories. And American corporate managers today seem to be taking an excessively short-term view of investment decisions, avoiding the long-term commitments involved in investing in major new industrial plants, while worrying more about leveraged buyouts and hostile takeover bids.

To what extent should we worry about the rising depreciation rate? On the one hand, the installation of new plants and equipment brings new technology on line regardless of whether it is "replacement" or "net" investment. In this respect, the use of net investment data understates the rate of technical advance in the economy and gross investment data are surely more reliable. As long as new capital goods are more productive than older types, they contribute to productivity growth whether they are counted as "replacement" or "net" investments. Indeed, as we have seen, rising depreciation charges are at least partly a side-effect of rapid technical advance in today's economy. In regard to the diffusion of new technology, then, low net investment rates are not a cause for alarm.

As long as new capital goods are more productive than older types, they contribute to productivity growth whether they are counted as "replacement" or "net" investments.

On the other hand, a rising depreciation rate which squeezes net investment does have potentially severe social costs. In order to see the problem clearly, consider the extreme case of pure replacement investment with zero net investment and assume (for the sake of discussion) that all installed equipment is fully utilized. If the replacement investment embodies pure labor-saving technical change,[42] then the resulting productivity growth will come entirely

There is no evidence that either gross or net investment spending in the United States in the 1980s was constrained by a shortage of saving.

at the expense of lower employment (less workers will be operating the same number of machines to produce the same quantity of output). In this case, only net investment (in additional machines) can offset the rise in labor productivity and keep employment from falling. Admittedly, this is an extreme example. But the point remains that a situation in which there is little net investment is one which may generate a tendency toward structural unemployment in industry, even if that tendency can be offset by other factors (e.g., the rise of labor-intensive service activities).

In this respect, the falling share of net investment is a potential source of concern. But nothing in this analysis suggests that the low rate of net investment results from "overconsumption" or inadequate saving. On the one hand, Pieper's analysis suggests that low net investment is partly a byproduct of the growth slowdown of the last two decades, relative to the postwar boom. On the other hand, low net investment is also caused by the shift toward investment in capital goods with shorter service lives, which is a function of technological change and the overall economic environment. The only way to increase net investment is by raising the growth rate and gross investment spending. Cutting mass consumption is not a solution for low net investment which is due to a high depreciation rate. Depressing consumer demand would only depress gross investment spending, as firms will not invest more if they do not perceive an expanding market for their products.

There is no evidence that either gross or net investment spending in the United States in the 1980s was constrained by a shortage of saving. Indeed, as shown in the previous section, the low net private saving rate is largely an artifact of the high depreciation rate—the same factor which is depressing net investment—and cannot therefore be regarded as an independent cause of the latter. And gross investment spending performed relatively well in the 1980s, which is not surprising since the corporate cash flow—the main source of financing for business fixed investment—was robust.

Of course, the relatively good performance of gross investment spending (as a share of GNP) in the 1980s came at a severe price: the United States relied on foreign capital inflows to finance domestic investment to an extent unprecedented in recent history. As shown in Table 12 above, negative net foreign investment—increasing our net indebtedness to the rest of the world—has been required to bridge the gap between national saving and domestic

While the U.S. external imbalance is a legitimate source of concern, the evidence in this report shows that it does not result from a "spending spree" by ordinary American families.

investment. This borrowing from abroad is the other side of the coin of the U.S. trade deficit, which in turn holds down the growth of domestic production and thus contributes to the appearance of private "overconsumption." While the U.S. external imbalance is a legitimate source of concern, the evidence in this report shows that it does not result from a "spending spree" by ordinary American families.

Policy Implications

There is little economic justification for policies specifically designed to discourage personal consumption and encourage personal saving. Certainly, there is no support for the notion that the rich need more tax breaks.

This report has shown that the appearance of massive "overconsumption" in the late 1980s is largely a result of the squeeze on average family incomes resulting from the sluggish growth of domestic production. To the extent that consumption spending was unusually high, the evidence suggests that this phenomenon was largely confined to the wealthiest households—roughly, the upper ten percent who received most of the benefits from Reagan's tax cuts, from the increased value of financial and other assets, from high interest income and from the conversion of corporate equity into cash due to leveraged buyouts. What appear to have been extraordinarily low rates of net private saving and investment are mainly the result of extraordinarily high depreciation rates—not a decline in private thrift. To put it simply, the average American consumer is not to blame for the nation's economic problems.

These findings are of critical importance for confronting the policy challenges of the 1990s. If most Americans are not really on a spending spree, if the shortfall of private domestic saving has been exaggerated and if investment has not been constrained by "overconsumption," then there is little economic justification for policies specifically designed to discourage personal consumption and encourage personal saving. Certainly, there is no support for the notion that the rich need more tax breaks (on capital gains, dividends, etc.) in order to increase the private saving rate. On the contrary, all the evidence suggests that the rich have spent a very large part of the increases in their income and wealth in the past decade and that this spending has contributed significantly to the false impression of a generalized consumption binge. Reagan's 1981 tax cuts were based on the supply-side belief that wealthy households would respond positively to incentives for saving more (higher after-tax rates of return). This didn't work in the 1980s and there is no reason to believe it will work in the 1990s.

Rather than giving more tax breaks to those who have benefited most from the income tax rate reductions of the 1980s, we need to look for tax reforms that could discourage overborrowing, encour-

age productive uses of capital and raise government revenue without worsening the distribution of income. Some useful proposals along these lines are found in McIntyre (1988), Anderson (1989), Musgrave (1989), and Pechman (1989). They all advocate raising the marginal tax rate on the highest income brackets, as well as some additional measures such as taxing unrealized capital gains at death, eliminating the deductibility of corporate interest payments and instituting a transfer tax on asset transactions (also suggested by Summers, 1989).

It is often argued, even by those who would grant many of these points, that broad-based sacrifices are still justified by the need to raise the national saving rate in order to lower the cost of capital for American business. Aside from the distributional question of who should make the sacrifices, the main problem with this argument is the implicit assumption that more incentives for saving will automatically call forth greater domestic productive investment by lowering the cost of capital. Even supposing that saving incentives could be effective and would lower the cost of capital—which is far from obvious—it is doubtful that this would have a significant positive impact on productive investment.

A number of recent theoretical and empirical studies of investment[43] have shown that the cost of capital explains at most only part of investment spending and that other factors are at least as important. Three other variables are also found to be significant in determining investment spending: the growth of demand for firms' products (the "accelerator effect"), the capacity utilization rate and firms' internal profitability ("cash flow"). The importance of these variables confirms businesspeople's common sense views about what influences their investment decisions.

No matter how low is the cost of capital, firms will not invest unless they perceive an expanding market for the products which can be produced with the increased productive capacity.

The new research on investment thus supports a fundamental Keynesian insight: even if raising the overall saving rate would lower the cost of capital, it would not necessarily succeed in promoting additional investment—especially if the growth of consumer demand was reduced in order to generate the additional saving. No matter how low is the cost of capital, firms will not invest unless they perceive an expanding market for the products which can be produced with the increased productive capacity and unless they have an adequate cash flow. Moreover, lenders will be reluctant to lend to firms that do not have adequate cash flow. Therefore, efforts to encourage saving at the expense of consumption are likely

Rather than trying to save more in order to stimulate more investment, we need to produce more in order to generate the higher incomes out of which high levels of saving and investment can be sustained.

to be counterproductive: even if the saving rate rises and the cost of capital falls, depressed demand (and utilization and profitability) would tend to discourage investment and incomes (along with the total level of saving) could end up lower as a result.[44]

Indeed, gross investment spending would not have been as robust as it was in the 1980s if only the cost of capital mattered. Real interest rates averaged 4.2 percent in the 1980s, as compared with -0.7 percent in the 1970s and 1.1 percent in the 1960s.[45] Nevertheless, the rapid expansion of demand in the post-1982 recovery and the adequate corporate cash flow helped to keep gross investment spending up to historical levels, relative to GNP. High interest rates may have had more impact on the composition of investment (especially the decline in long-lived projects) than on the total amount.

Rather than trying to save more in order to stimulate more investment, we need to produce more in order to generate the higher incomes out of which high levels of saving and investment can be sustained. Efforts to make the United States economy more productive at home and more competitive abroad are difficult and complex to pursue. There are no simple or magic solutions, such as consumption taxes or saving incentives. But the first step in conceptualizing sound policy must be a clear definition of what the problem is and what it is not. The problems of the American economy cannot be attributed to excessive spending by the average American consumer.

Appendix

In macroeconomics, the theory of aggregate consumer behavior is summarized in the "consumption function." A commonly used consumption function is of the general form,

$$(A.1) \quad C = a + bY_d + cW,$$

where C is personal consumption expenditures, Y_d is personal disposable income, W is personal wealth and a, b, and c are positive constants (behavioral parameters). Other variables, such as proxies for demographic shifts, can then be added to (A.1). In order to obtain an expression for the consumption-national product ratio we simply divide (A.1) through by national product, Y:

$$(A.2) \quad C/Y = a(1/Y) + bY_d/Y + cW/Y.$$

For econometric reasons, it is preferable to estimate (A.2) instead of (A.1).[47] Moreover, the "consumption binge" argument is based on the high C/Y ratio in 1985-88.

Before proceeding further, it is important to clear up the distinction between using NNP versus GNP as the measure of the national product (Y). As explained in the text, the difference between GNP and NNP is economic depreciation or "capital consumption allowances" (CCA). Thus:

$$(A.3) \quad NNP = GNP - CCA = (1 - CCA/GNP)GNP.$$

Equation (A.3), which is an accounting identity, shows clearly that an increase in the depreciation rate (CCA/GNP) will reduce NNP, for any given level of national product (GNP), completely independent of consumer behavior. Since our intention is to focus on consumer behavior and not to introduce any error due to changes in the depreciation rate, it is preferable to use GNP as a measure of Y.

In their study of *Overconsumption*, Hatsopoulos, Krugman and Poterba (HKP, 1989) estimated a consumption function based on

(A.2), using NNP as their measure of national product and adding percentage of the population under 16 as a proxy for life-cycle factors.[48] HKP's main innovation was to include a measure of after-tax household cash receipts from corporate takeovers. The logic behind this variable is that equity owners have been unexpectedly forced to convert stock into cash by leveraged buyouts and have spent a sizeable share of this cash windfall rather than saving most of it. Since disposable income does not include these cash receipts but is reduced by the capital gains taxes paid on them, HKP add the estimated capital gains taxes on cash receipts back into the disposable income series in order to avoid a spurious inverse correlation between disposable income and after-tax cash receipts.

HKP's results, which are presented in column (1) of Table A-1, are consistent with the analysis in this paper. Out of a total increase in personal consumption of 4.7 percent of NNP from 1970-79 to 1985-87, they attribute 1.8 percentage points to increased disposable income (which, as they acknowledge, is mainly due to higher interest income), 0.8 to increased household net worth and 0.7 to higher after-tax cash receipts from corporate takeovers. Thus a total of 3.3 percentage points, or about 70 percent of the total increase in consumption relative to NNP, is attributed to factors which generally reflect the increased income and wealth of the rich in the 1980s. Another 1.0 percentage points (21 percent of the total) are attributed to the falling proportion of the population under 16.

There are a few problems with HKP's estimates, however. First, the positive estimated effect of cash receipts from corporate takeovers, while intuitively plausible, is of low statistical significance. Second, HKP's equation has first-order autocorrelated (AR1) least squares residuals, as reflected in the significant "rho" coefficient in column (1) of Table A-1. AR1 residuals can be a sign of a missing (or incorrectly measured) variable in time series regressions. And third, the authors deflate all the variables by NNP, which is affected by the depreciation rate independently of consumer behavior.

These considerations suggest a few modifications to HKP's model. First, I replace the population-under-16 variable with another demographic indicator, Christian's (1989) ratio of "prime savers" to "prime borrowers" (population 45-64/population 25-44), which is known to be highly correlated with the personal saving rate (see Figure 4). Second, I use GNP as the measure of national

Table A-1
Estimated Consumption Functions

Variable	(Equation) (1)	(2)
1/Real National Product Per Capita	.28 (.10)	.17 (.10)
Adjusted[a] Personal Disposable Income/National Product	.83 (.03)	.86 (.03)
Household Net Worth/National Product	.03 (.01)	.02 (.01)
Cash Receipts from Corporate Takeovers[b]/National Product	.59 (.42)	.57 (.36)
Population Under 16/ Total Population	-.22 (.06)	
Prime Savers (45-64)/ Prime Borrowers (25-44)		-.06 (.01)
Rho	.39 (.18)	
R^2	.91	.87
Durbin-Watson	c	1.73

Notes: The dependent variable is personal consumption expenditures/national product. Standard errors are in parentheses. See Table 9 for sources of the data.

(1) is the equation estimated by Hatsopoulos et al. (1989), using an AR1 procedure (unspecified, but probably Cochran-Orcutt), with annual data for 1950-87. National product is measured by NNP.

(2) was estimated by the author using OLS, with annual data for 1950-88. National product is measured by GNP.

a. Disposable income is adjusted by adding on the estimated capital gains taxes paid on cash receipts, to avoid a spurious negative correlation of these two variables. See text for more explanation.

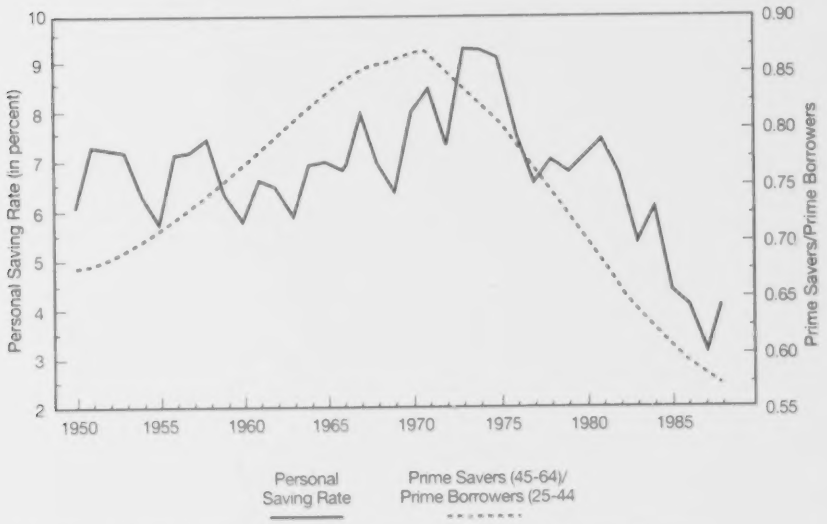
b. Defined as after-tax household cash realizations from merger and acquisition activity. Estimates for 1950-85 were taken from Hatsopoulos et al. (1989, Table VII). Revised estimates for 1986-87 and the estimate for 1988 were constructed using the same methodology, with assistance from James Poterba. See endnote 49 for more details.

c. Not reported.

income. In addition, I am able to include an extra observation (1988 data) in my regression, as well as to use revised data for 1986-87. My results are given in column (2) of Table A-1.

Figure 4

Personal Saving and Demographic Change



Source: National Income and Product Accounts and Census Bureau.

The main differences between my results and HKP's are as follows. First, using GNP and the prime savers-borrowers ratio eliminates the autocorrelation of the residuals. The other coefficients change only slightly—higher for the marginal propensity to consume out of disposable income, lower for the wealth and cash receipts effects. The cash receipts variable is still not significant at the 5 percent level but has a higher *t*-statistic (about 1.6 versus 1.4). Although the R^2 appears lower for equation (2) than for (1), the R^2s are not really comparable since the equations have different dependent variables (consumption/GNP versus consumption/NNP).

Equation (2) from Table A-1 is used to derive the estimates of the sources of increased consumption in Table 9 in the text. The main difference from HKP's results is that my equation shows a relatively bigger demographic effect and relatively smaller income and wealth effects (including cash receipts). Nevertheless, the qualitative implications are the same: after controlling for demographic shifts,

most of the remaining increase in the consumption-national income ratio, however measured, is due to higher interest income, personal wealth and cash receipts.

The strength of the demographic variable in the econometric estimation may be surprising, in light of the mixed evidence for the life-cycle hypothesis discussed in the text. When no demographic variable is included in the consumption function, however, the residuals become highly autocorrelated (showing the same pattern as the savers-borrowers ratio in Figure 4) and the coefficients on the other variables become unstable. Unless this variable is picking up the effects of some other, unobserved factor, it is necessary to explain why the demographic effect is so strong in the time-series, in spite of the lack of evidence for life-cycle saving behavior in the survey data.

It is important in this regard to distinguish the pure life-cycle hypothesis from a more general demographic view. The pure hypothesis assumes that people save only for retirement and try to consume their accumulated wealth in old age. Even if this is not generally true, people may still save the most in their prime earning years. This could explain why the prime savers-borrowers ratio is so significant, in spite of the high average propensity to save of the elderly (Danziger *et al.*, 1982-83).

In any case, the only point of including the age-composition variable is to control for potential demographic effects, in order to prevent the coefficients on the other variables from being biased by an omitted variable. All the other coefficients which we are interested in take on believable magnitudes when the prime savers-borrowers ratio is included.

Endnotes

1. For example, Robert J. Samuelson (1989) justifies his assertion of a "spending spree" by counting the number of microwaves, televisions, VCRs, automobiles and other durable consumer goods purchased between 1983 and 1988. He does not provide comparable figures on washers and dryers purchased between 1953 and 1958 or color TVs bought between 1963 and 1968.

2. Clearly, most professional economists seem uncomfortable with the popular notion that individual consumers have suddenly changed their attitudes toward thrift. Summers and Carroll (1987, pp. 621, 634) argue that, "when historical trends and current macroeconomic conditions are taken into account, private and personal saving have not been unusually low, and may even have been abnormally high, over the past five years.... The forces causing private saving to decline... are all basically benign."

Nevertheless, few economists who have written in support of the "overconsumption" and "saving shortfall" hypotheses have been able to avoid the temptation to employ moralistic language. For example, Friedman's (1989) book, entitled *Day of Reckoning*, is replete with religious metaphors and Biblical quotes, while Bosworth (1989, p. 27) alludes to "the *pleasures* of the spending binge" (emphasis added). This kind of terminology seems to support the popular impression that the fault lies in individual profligacy, even when that is not implied by the author's analysis.

3. The advocacy of consumption taxation antedates the current concern about the mid-1980s "consumption binge." See, e.g., Boskin (1983).

4. According to official Commerce Department statistics, the U.S. went from a net credit position of $140.9 billion in 1981 to a net debt position of $532.5 billion in 1988. However, these estimates have been criticized (see Ulan and Dewald, 1989; Eisner and Pieper, 1989), mainly on the ground that direct foreign investment is evaluated at historical cost. Since U.S. direct investment abroad

tends to be older than foreign direct investment in the U.S., the official measure greatly undervalues the former. When appropriate corrections are made, the U.S. net debt appears much smaller but the U.S. international investment position still declined in the 1980s. For example, Eisner and Pieper's series based on current market values of direct foreign investment, gold and Third World loans shows a peak net credit of $339.2 billion in 1980 and a net debt of $117.1 billion in 1988.

5. Actually, the current account equals net exports of goods and services plus net unilateral transfers; the latter are ignored here.

6. In calendar year 1988, these balances were all in the red to the tune of approximately $120 billion, with the exact amount depending on the measure used. The balance-of-payments accounts show a current account deficit of $127 billion, with net exports of goods and services equal to $-112 billion (excluding $15 billion of net unilateral transfers to foreigners). The national income accounts show a savings-investment shortfall of $108 billion, with net foreign investment of $-118 billion and a $10 billion "statistical discrepancy." The national income accounts report "net exports of goods and services" of only $-74 billion but this figure excludes $29 billion of U.S. government interest payments to foreigners and other smaller items included in the balance-of-payments accounts.

7. Eisner (1986, 1989b) and Heilbroner and Bernstein (1989) have argued that there is virtually no "real" government deficit (state, local and federal combined), once corrections are made for the reduced value of the national debt due to inflation and the portion of government expenditures which should be counted as public investment. However one measures the level of the government's fiscal position, there can be no doubt that the structural budget deficit has increased in the 1980s, and in this sense public sector saving has certainly decreased.

8. Some overconsumption/undersaving arguments hinge on *international* comparisons, in which the U.S. compares unfavorably with competitor nations such as Japan. This paper will not explicitly address such comparisons but many of the issues of measurement and causality raised here are also relevant to assessing the validity of those comparisons. See Hayashi (1986) for some of the factors which account for Japan's high measured saving rate.

9. It is problematic to compare these four years with entire past decades, since 1985-88 were all recovery years, while the complete decades include both recession and recovery periods. We make this type of comparison here because it is frequently made in the over-consumption literature. An alternative perspective, based on cyclical peak-to-peak growth rates, is given in Table 8, below.

10. Personal disposable income includes all "factor income" (wages, salaries, benefits, interest, dividends, rent and proprietary income) of households, plus transfer payments (welfare, social security, etc.), minus personal income taxes and personal contributions for social insurance (individuals' part of social security and other payroll taxes).

11. This point has been emphasized by conservative economists such as Barro (1989). In their view, "rational" households will naturally consume a higher proportion of their current income when the value of their existing wealth rises since the increase in wealth substitutes for current saving. On this basis, Barro discounts the idea that a higher consumption rate out of current income indicates a decline in individual thriftiness.

12. No consumer expenditure surveys were conducted between 1972-73 and 1980-81. Since that time, surveys have been conducted more regularly: there was a 1982-83 survey, followed by annual surveys starting in 1984. For an analysis of the growth of aggregate consumption that corrects for the effects of the business cycle see Table 8, below.

13. The picture looks very similar if total, instead of per capita, consumption is used. The picture looks even more dramatic if the fixed-weight consumer price index is used to deflate nominal consumption expenditures, instead of the implicit price deflator which is used here. Figures 1a and 1b thus present the most conservative view possible of the extent to which the growth of real per capita consumption in the 1980s lagged behind previous trends.

14. This argument is also supported by the evidence on consumer borrowing in the 1980s. Pollin (1989) shows that the rising debt-income ratio for U.S. households in the 1980s reflected "necessitous borrowing" by lower- and middle-income households (due to lower or stagnant real incomes), as well as "speculative borrowing" among the wealthy (borrowing to finance asset purchases).

15. This definition does not include government interest and transfer payments, which are not purchases of goods or services.

16. Note that the net exports deficit of $73.7 billion shown in Table 4 is much lower than the other measures of the trade deficit for reasons explained in endnote 6.

17. Of course, tax incentives for investment may influence the kinds of capital goods that firms buy but not the way that the economic depreciation of those goods is calculated once they are in place.

18. The reasons for this rise in capital consumption allowances will be discussed in the section on investment, below.

19. The percentages in Tables 3 and 5 cannot be compared directly because consumption always appears to be a smaller share of GNP than NNP. However, proportional increases can be calculated by taking the absolute change in the percentage of consumption in GNP or NNP and dividing it by the average for the base period. For example, the proportional increase in personal consumption as a share of GNP from 1970-79 to 1980-88 is only 3.8 percent, compared with 5.6 percent as a share of NNP.

20. Note that gross domestic purchases are equivalent to the "domestic expenditures" in the macro identity on page 2, above. This variable is sometimes also referred to as "absorption."

21. Prior to 1983, the U.S. generally had trade surpluses by this broad definition (which includes net income from foreign investments), so that GNP used to exceed domestic purchases.

22. Of course, government purchases were unusually high in the 1960s due to the Vietnam War.

23. However, there is evidence for a falling rate of public investment. See Aschauer (1989).

24. This phrase was suggested by Paul Davidson.

25. The author's research on the causes of the trade deficit will be reported in Blecker (forthcoming).

26. Often, this point is expressed differently: the real exchange rate consistent with balanced trade falls secularly over time. However,

the dollar clearly did not fall enough to achieve balanced trade in the 1980s, so in this sense declining competitiveness did contribute to the trade deficit.

27. These growth rates are calculated by a linear interpolation between the quarterly cyclical peaks. I am indebted to Milton Lower for suggesting this manner of presenting the data. An alternative calculation using log-linear least squares regression would show slightly higher growth rates for consumption in the 1980s. However, the regression approach is biased because of the steep tilt imparted to the trend line by the prolonged recession of 1980-82.

28. Strictly speaking, there were two business cycles in the 1980s: an abbreviated one from 1980-I to 1981-III, and a more extended one from 1981-III to the present. Since the 1981 recovery was extremely weak and short-lived, the entire period 1980-I to 1989-IV (the most recent quarter for which data are available) is treated as one cycle.

29. Hatsopoulos *et al.* used the consumption-NNP ratio, which is biased by the effects of increased capital consumption allowances as discussed above.

30. Bosworth (1989) argues that the wealth-income ratio in the 1980s is not high relative to the more distant past, such as the 1960s; rather, this ratio was unusually depressed in the 1970s. However, this point is irrelevant for explaining why the consumption-GNP ratio rose from the 1970s to the 1980s, which is the comparison most studies of "overconsumption" have focused on.

31. I would like to thank James Poterba for help in extending this series to 1988.

32. This estimate is consistent with the estimated coefficient of .59 in Hatsopoulos *et al.* (1989). See the Appendix for more details.

33. The purpose of including this variable is to make sure that the estimated effects of the other variables are not representing an omitted demographic effect. It is important to emphasize that allowing for some influence of demographic factors is not equivalent to accepting the full-fledged life-cycle hypothesis. For further discussion of the theoretical and econometric rationale for including this variable see the Appendix.

34. The data in this paragraph and the one following are from Mishel and Simon (1988, pp. 31-32).

35. Cantor (1989) argues that interest income is not highly concentrated, based on Internal Revenue Service (IRS) data. In 1986, for example, federal personal income tax returns with adjusted gross incomes (AGI) of $50,000 and above, which accounted for 9.2 percent of all returns, accounted for 34.7 percent of all AGI and 33.2 percent of reported interest income (*Statistical Abstract of the United States 1989*, Table 509). But this data is misleading for two reasons: first, many truly wealthy taxpayers can reduce their AGI substantially with tax shelters and business or investment losses; and second, many types of interest (e.g., on municipal bonds) are not subject to federal taxation and are therefore not included in the IRS data.

36. Since the national debt is measured at the end of the federal fiscal year, I used third-quarter GNP (at an annual rate) to calculate these percentages. Data are from the BEA and *Economic Indicators*, December 1989.

37. Whether the budget deficit also contributed to high real interest rates is more debatable. While neoclassical economists (generally, the same ones who maintain the overconsumption hypothesis) claim that the fiscal deficit causes high interest rates which "crowd out" private investment, both "new classical" (e.g., Evans, 1985 and 1987) and Keynesian (e.g., Eisner, 1989b) economists deny this. The latter attribute high interest rates mainly to monetary policy and argue that expansionary fiscal policy can even "crowd in" investment.

38. The effect of the federal budget deficit on income distribution is emphasized by Baldani and Michl (1987) and Michl (1990) .

39. Examples of studies which use net saving rates are Bosworth (1989), Nordhaus (1989), Hatsopoulos *et al.* (1989) and Summers and Carroll (1987). Summers and Carroll adjust the net saving rates for inflation and divide by full-employment GNP, while the other studies cited here just take nominal net saving as a percentage of net national product or national income.

40. See Denison (1988), who criticizes these conventions, and Young (1989), who defends them.

41. See Mishel (1988, 1989) for evidence on deindustrialization.

42. I use this term in the sense of Pasinetti's (1981) definition of pure "mechanizing" technical progress: the labor output ratio decreases continuously, while the capital-output ratio remains constant.

43. See Eisner (1978), Chirinko and Eisner (1982, 1983), Abel and Blanchard (1986), Fazzari and Mott (1986-87), Fazzari and Athey (1987) and Fazzari, Hubbard, and Peterson (1988a and 1988b).

44. For an argument along these lines see Davidson (1981).

45. These interest rate figures are taken from Dornbusch *et al.* (1989, p. 13).

46. According to some models, if a wealth term is included, it is redundant to include capital income in disposable income. However, as long as there are some liquidity constraints on spending out of wealth, the use of total disposable income may be justified.

47. Even if C is measured as real per capita spending, it tends to grow exponentially over time. This means that the variance of C increases over time, which can result in heteroscedastic errors. The ratio C/Y, on the other hand, tends to have a more constant variance.

48. The logic of this variable is straightforward: people 16 years old and older consume more than children under 16. This variable was apparently settled on after an admittedly *ad hoc* specification search. However, it does not capture the age distinctions which are of the greatest importance for the lifecycle hypothesis.

49. The formula for estimating this variable is:

(Value of mergers & acquisitions x cash share)
x [household equity/(total other equity - foreign equity)]
x [1 - (.5 x capital gains tax rate)].

For 1968-88, the value of mergers & acquisitions and the cash share are taken from Grimm's *Mergerstat Review*; the cash share includes half of the combined (cash plus debt) share. Earlier data were

extrapolated by Hatsopoulos *et al.* based on other sources. The data on equity ownership used to compute the household share of domestically owned equity (excluding mutual funds) are from the Federal Reserve's *Flow of Funds* accounts; annual averages of quarterly data were used. The capital gains tax rate is the maximum or marginal rate; it is multiplied by .5 assuming that the basis of the stockholders' shares was half of their sale price.

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